

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A pumping system, comprising:

a submersible, centrifugal pump having an outer housing, a shaft, a plurality of diffusers mounted within the outer housing and a plurality of impellers mounted about the shaft, each impeller having a short hub formed of a moldable plastic and a sleeve axially adjacent the short hub, wherein the sleeve is positioned about the shaft for rotation within a next adjacent diffuser, the sleeve being formed of a non-plastic material able to better withstand abrasive wear relative to the moldable plastic.
2. (Canceled)
3. (Currently amended) The pumping system as recited in claim 1 2, wherein the sleeve is a metal sleeve.
4. (Currently amended) The pumping system as recited in claim 1 2, wherein the sleeve is a nickel cast iron sleeve.
5. (Original) The pumping system as recited in claim 1, wherein the moldable plastic comprises an arlene sulfide polymer.
6. (Original) The pumping system as recited in claim 1, wherein the moldable plastic comprises a polyphenylene sulfide (PPS) material.
7. (Original) The pumping system as recited in claim 1, wherein each diffuser comprises a moldable plastic.

8. (Original) The pumping system as recited in claim 7, wherein each diffuser comprises at least one metal reinforcement member molded into the moldable plastic.
9. (Original) The pumping system as recited in claim 8, wherein the moldable plastic comprises PPS.
10. (Original) The pumping system as recited in claim 1, wherein each impeller has a plurality of moldable plastic vanes extending from the short hub.
11. (Currently amended) An electric submersible pumping system, comprising:
 - a submersible motor;
 - a motor protector; and
 - a submersible pump with a plurality of stages, each stage having an impeller with a plurality of vanes, ~~formed of a moldable plastic~~, and a sleeve that rotates with the plurality of vanes, the plurality of vanes being formed of a moldable plastic and the sleeve being formed of a material having greater wear resistance than the moldable plastic.
12. (Original) The electric submersible pumping system as recited in claim 11, wherein the sleeve is a metal sleeve.
13. (Original) The electric submersible pumping system as recited in claim 12, wherein the moldable plastic comprises PPS.
14. (Original) The electric submersible pumping system as recited in claim 11, wherein the impeller comprises a short hub formed of the moldable plastic and integrally molded with the plurality of vanes, the sleeve being disposed axially adjacent the short hub.

15. (Original) The electric submersible pumping system as recited in claim 11, wherein each stage has a diffuser comprising a moldable material.
16. (Original) The electric submersible pumping system as recited in claim 15, wherein the moldable material is the same type of moldable plastic used to formed the plurality of vanes.
17. (Original) The electric submersible pumping system as recited in claim 15, wherein the diffuser comprises at least one reinforcement member molded into the moldable material.
18. (Currently amended) A pumping system, comprising:

a submersible, centrifugal pump having an outer housing, a shaft, a plurality of diffusers mounted within the outer housing and a plurality of impellers mounted about the shaft, each diffuser being formed of a moldable material and a reinforcement member molded into the moldable material, the reinforcement member being disposed generally circumferentially along a radially outlying region of the diffuser.
19. (Original) The pumping system as recited in claim 18, wherein the moldable material comprises PPS.
20. (Original) The pumping system as recited in claim 18, wherein the reinforcement member is a metal ring having surface features to grip the moldable material.
21. (Currently amended) A method of creating an impeller for a centrifugal, submersible pump having a plurality of stages through which a liquid is pumped, comprising:

forming a short hub and a plurality of attached impeller vanes from a moldable material; and

positioning a wear resistant sleeve axially adjacent the short hub to create a longer hub, the wear resistant sleeve being formed of a material having greater wear resistance than the moldable material, the wear resistant sleeve extending into an area more susceptible to wear.

22. (Original) The method as recited in claim 21, wherein forming comprises forming the short hub and the plurality of attached impeller vanes from a moldable plastic.
23. (Original) The method as recited in claim 21, wherein forming comprises forming the short hub and the plurality of attached impeller vanes from PPS.
24. (Original) The method as recited in claim 21, wherein positioning comprises positioning a wear resistant metal sleeve.
25. (Original) The method as recited in claim 21, wherein positioning comprises positioning a wear resistant nickel-resist sleeve.
26. (Currently amended) A method of creating a centrifugal, submersible pump having a plurality of stages through which a liquid is pump, comprising:

forming a composite diffuser with a stiffening member integrally molded into a moldable plastic material such that the stiffening member is at least partially disposed at a radially outlying region of the composite diffuser.
27. (Original) The method as recited in claim 26, further comprising positioning the composite diffuser and an impeller in each stage.
28. (Original) The method as recited in claim 27, creating each impeller from a combination of the moldable plastic material and a wear resistant sleeve.

29. (Original) The method as recited in claim 26, wherein forming comprises forming the diffuser with a stiffening member being a metal ring.

30. (Original) The method as recited in claim 26, wherein forming comprises molding the stiffening member into PPS.

31. (Original) The method as recited in claim 27, further comprising forming the impeller with a short hub and vanes, molded from PPS, and a nickel-resist sleeve adjacent the short hub.

32. (Currently amended) A device for use in a centrifugal pump, comprising:
a composite diffuser formed of a moldable material and a reinforcement member integrally molded into the moldable material at a radially outlying region of the composite diffuser.

33. (Original) The device as recited in claim 32, wherein the moldable material is a moldable plastic material.

34. (Original) The device as recited in claim 33, wherein the reinforcement member comprises a metal material.

35. (Original) The device as recited in claim 32, wherein the reinforcement member comprises a ring having a plurality of gripping features.

36. (Original) The device as recited in claim 32, wherein the reinforcement member comprises a plurality of reinforcement members.

37. (Currently amended) A device for use in a centrifugal pump, comprising:

an impeller having a plurality of vanes extending radially from a central section and a sleeve extending axially from the central section to provide a wear surface, the plurality of vanes being formed from a moldable material and the sleeve being formed from a material comprising nickel-resist to provide having greater wear resistance than the moldable material.

38. (Original) The device as recited in claim 37, wherein the moldable material is a moldable plastic.
39. (Original) The device as recited in claim 38, wherein the sleeve is a metal sleeve.